Important Advances in Clinical Medicine

Epitomes of Progress -- General Surgery

The Scientific Board of the California Medical Association presents the following inventory of items of progress in General Surgery. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and important clinical significance. The items are presented in simple epitome and an authoritative reference, both to the item itself and to the subject as a whole is generally given for those who may be unfamiliar with a particular item. The purpose is to assist the busy practitioner, student, research worker or scholar to stay abreast of these items of progress in General Surgery which have recently achieved a substantial degree of authoritative acceptance, whether in his own field of special interest or another.

The items of progress listed below were selected by the Advisory Panel to the Section on General Surgery of the California Medical Association and the summaries were prepared under its direction.

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Pulmonary Embolectomy

Pulmonary embolectomy, a modification of the Trendelenburg operation now performed under the controlled conditions of cardiopulmonary bypass, is an effective therapeutic tool and survival data is excellent. Its success is dependent upon rapid clinical diagnosis, stressing history and physical examination and adding central venous pressure and electrocardiographic studies as the most used confirmatory tests. The extra time for pulmonary scans may be added if the diagnosis remains in doubt. Pulmonary arteriograms for confirmation are used as a last resort because they greatly increase mortality when pulmonary embolism and right ventricular hypertension with irritability are present. Instrumentation of a distended right ventricle and the addition of a hyperosmolar substance to the vascular system often results in fatal ventricular arrythmias or intense sinus bradycardias.

Historically, the highest incidence of embolization is in postoperative patients, the second highest in women using birth control pills, and then in the postpartum period. Following embolization, lowered left ventricular outputs result in shock states with poor peripheral perfusion. Cyanosis, hyperventilation and collapsed peripheral veins are noted, while at the same time central venous hypertension is reflected either in the jugular veins or elevated central venous pressure measurements (20 to 30 cm of water). A supraventricular tachyarrhythmia results most likely from the acute right-sided overload. Electrocardiographically, this is atrial fibrillation, atrial flutter, or sinus tachycardia, and these are associated with evidence of right ventricular strain. Arterial blood gas determinations consistently show hypoxemia, hypocarbia and a compensated metabolic acidosis in the form of a normal pH.

Immediate treatment consists of cardiopulmo-